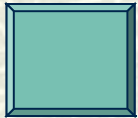
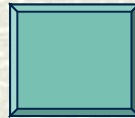


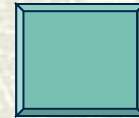
# Ultraviolet Radiation (UVR) Protection Guidance



Sources of Outdoor UVR.



UVR Protection.



UVR Damage to Health.



Print Presentation.



Contact Us.

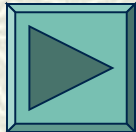


U.S. Army Center for Health Promotion  
and Preventive Medicine  
Laser/Optical Radiation Program

Exit

# UVR Protection

The most-effective protection methods are listed first.



U.S. Army Center for Health Promotion  
and Preventive Medicine  
Laser/Optical Radiation Program

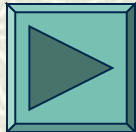
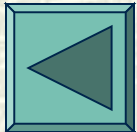


# Limit Your Time Outside.

-Use the time-of-day as a

guide.

- UVR is most intense during the midday hours, from roughly 10 am to 4 pm.

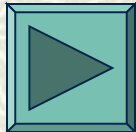
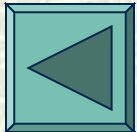




# Limit Your Time Outside.

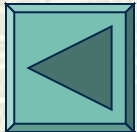
-Use the “shadow rule” as a guide.

- # UVR is most intense during the midday hours, roughly 10 am to 4 pm. But if you don't know the time, protect yourself when your shadow's length is shorter than your height.



# Seek Shade.

- Use natural or artificial cover.



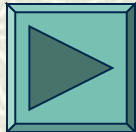
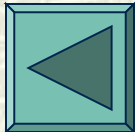
# Protect With Clothing.

- Cover the head, neck, and

S



**Tightly-woven, less stretchable fabrics protect best.**



U.S. Army Center for Health Promotion  
and Preventive Medicine  
Laser/Optical Radiation Program

Exit

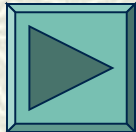
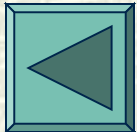


# Protect With Clothing.

- Cover the arms, legs, and



**Tightly-woven, less stretchable fabrics protect best.**



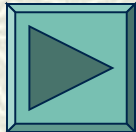
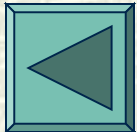
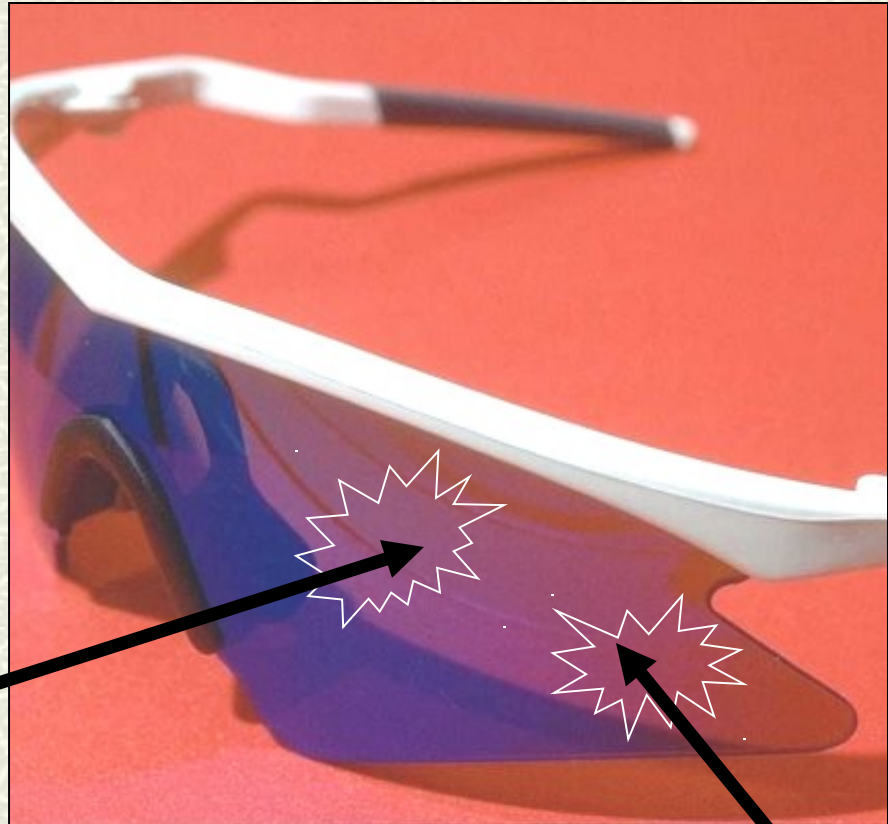
U.S. Army Center for Health Promotion  
and Preventive Medicine  
Laser/Optical Radiation Program

Exit

# Protect Your Eyes.

- Use hats or wraparound-design sunglasses.

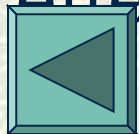
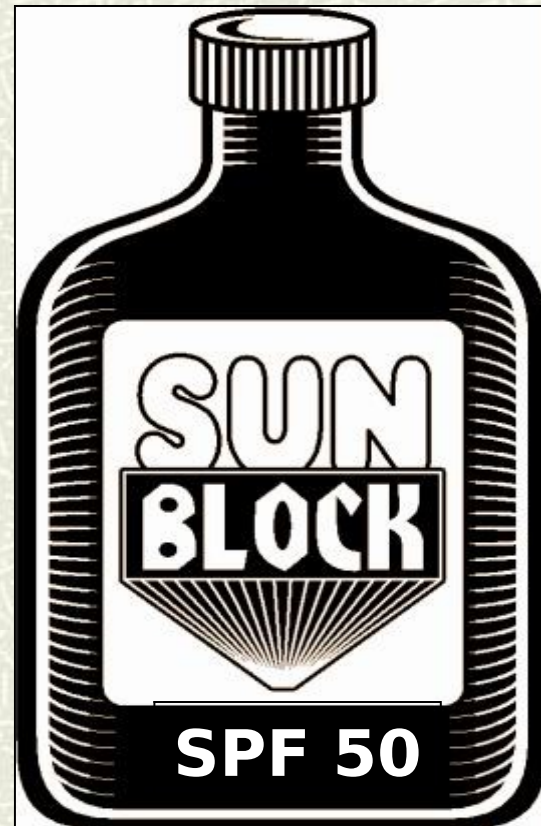
- # Wraparound design sunglasses not only block UVR from the front, but also from the side.





# Use Sunscreens With High SPF's (Sun Protection Factors)

- If clothing isn't available for UVR protection, liberally apply sunscreen with high SPF's. Reapply the sunscreen every couple of hours; otherwise, the sunscreen will be less effective.



# Sources of Outdoor UVR

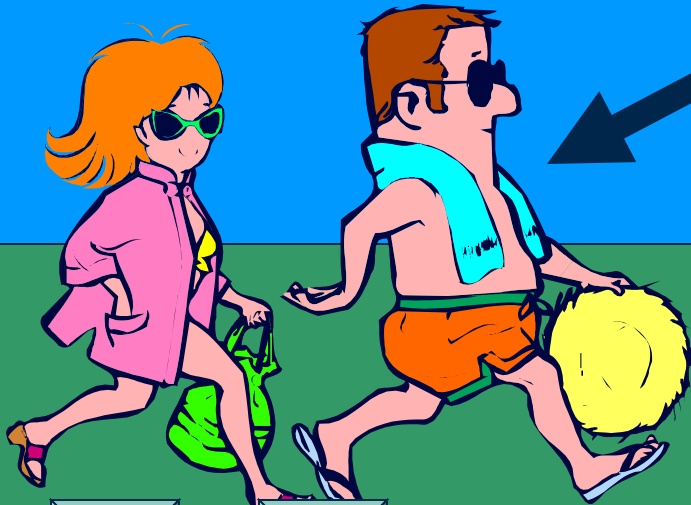
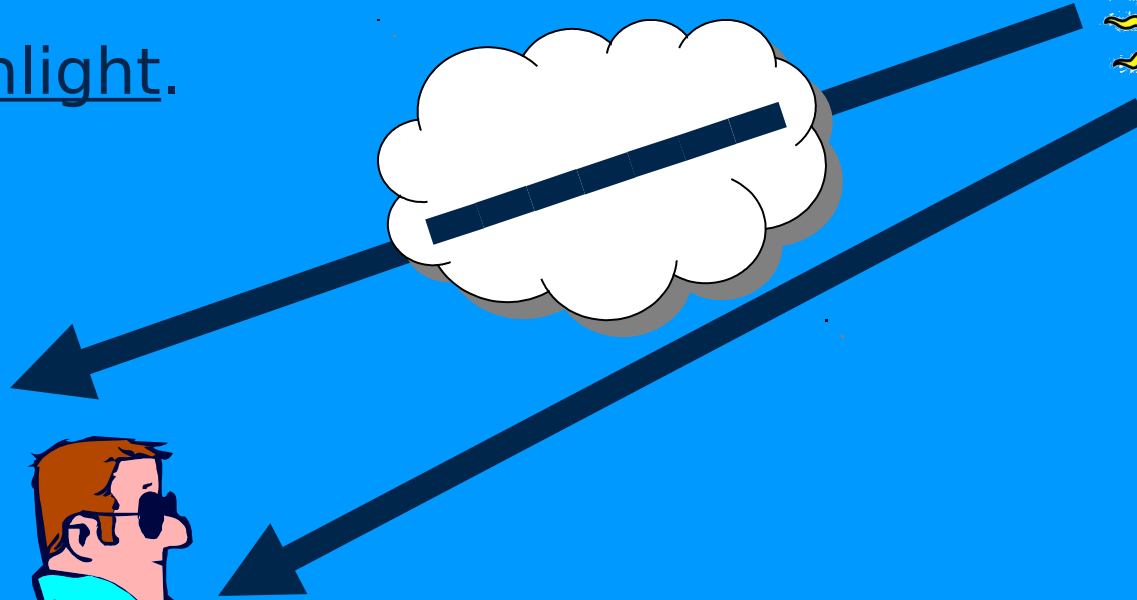
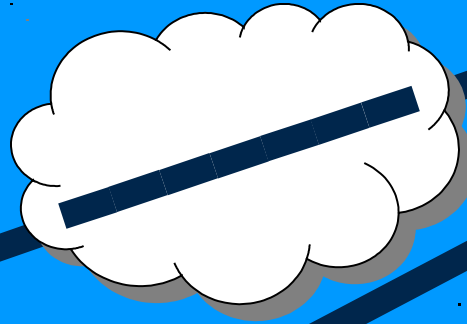
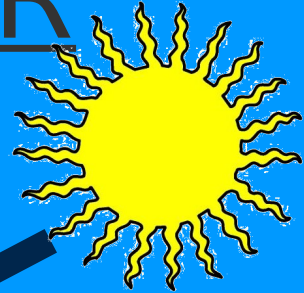


U.S. Army Center for Health Promotion  
and Preventive Medicine  
Laser/Optical Radiation Program

Exit

# Sources of Outdoor UVR

Direct sunlight.



U.S. Army Center for Health Promotion  
and Preventive Medicine  
Laser/Optical Radiation Program

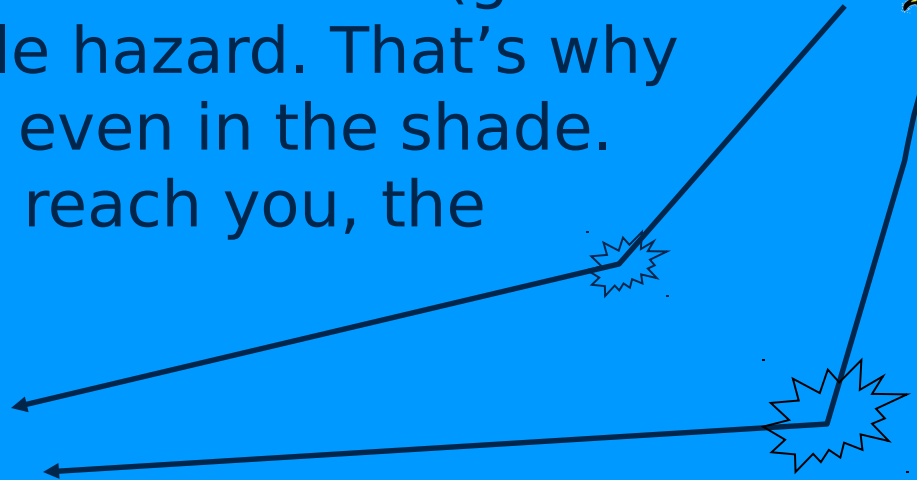
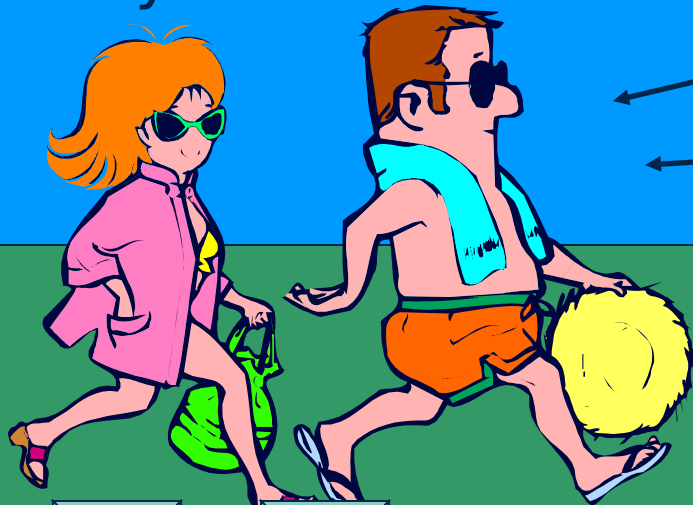
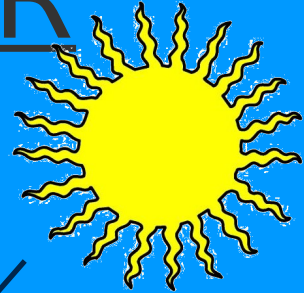




# Sources of Outdoor UVR

## Diffusely reflected sunlight.

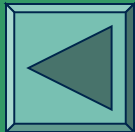
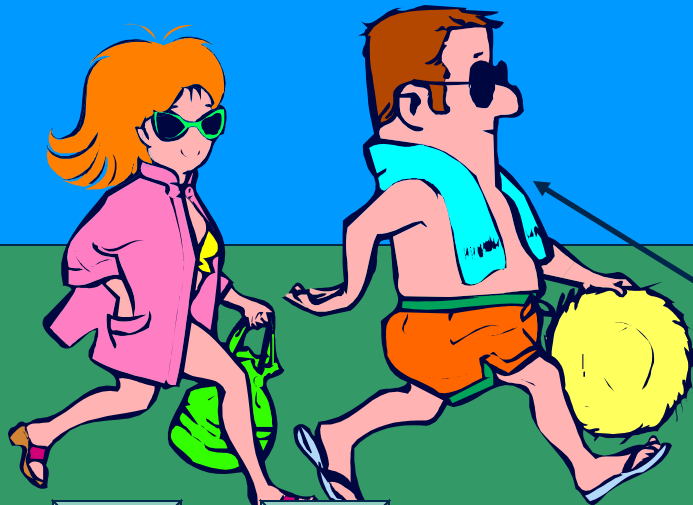
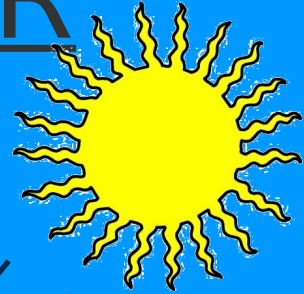
The blue sky is a source of UVR and (given enough time) a possible hazard. That's why you can get a sunburn even in the shade. The more blue sky can reach you, the greater your hazard.



# Sources of Outdoor UVR

## Surface reflections.

Green grass reflects ~ 1% of UVR  
and only minimally increases your  
overall exposure.



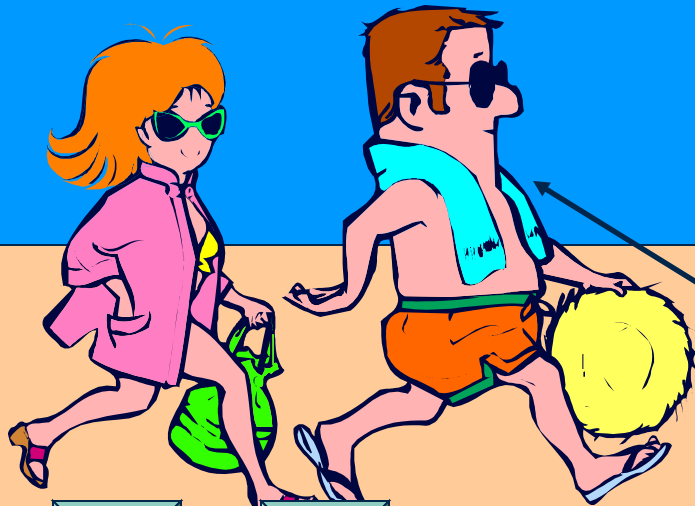
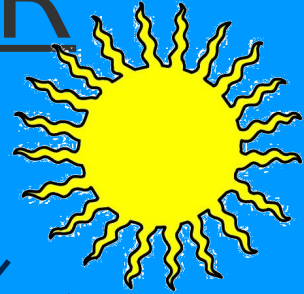
U.S. Army Center for Health Promotion  
and Preventive Medicine  
Laser/Optical Radiation Program

Exit

# Sources of Outdoor UVR

## Surface reflections.

Dry grass, sand and concrete reflect ~ 10% of UVR, increasing your overall exposure.

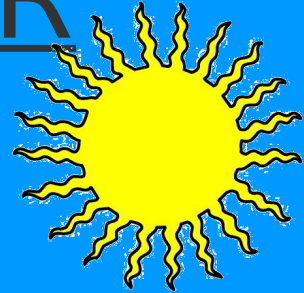


U.S. Army Center for Health Promotion  
and Preventive Medicine  
Laser/Optical Radiation Program



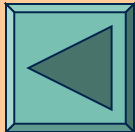
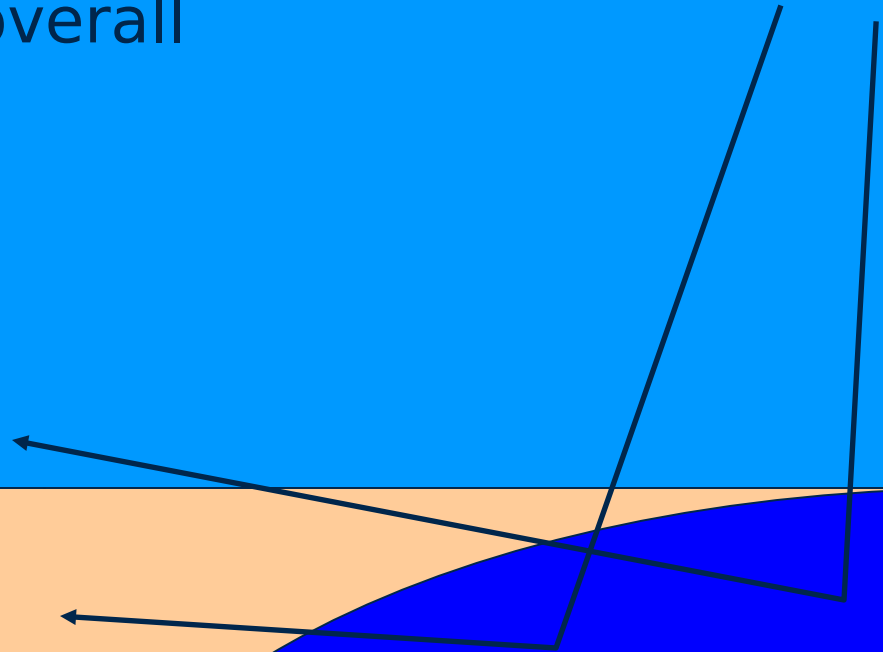
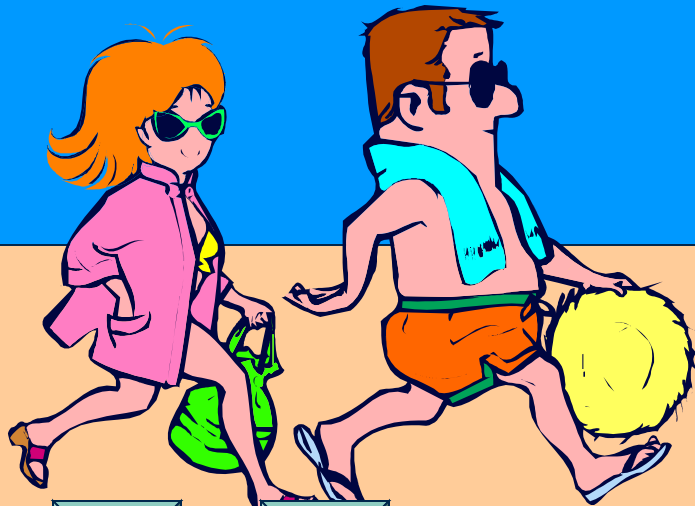


# Sources of Outdoor UVR



## Surface reflections.

Bodies of water reflect ~ 25% of UVR, increasing your overall exposure.



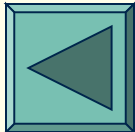
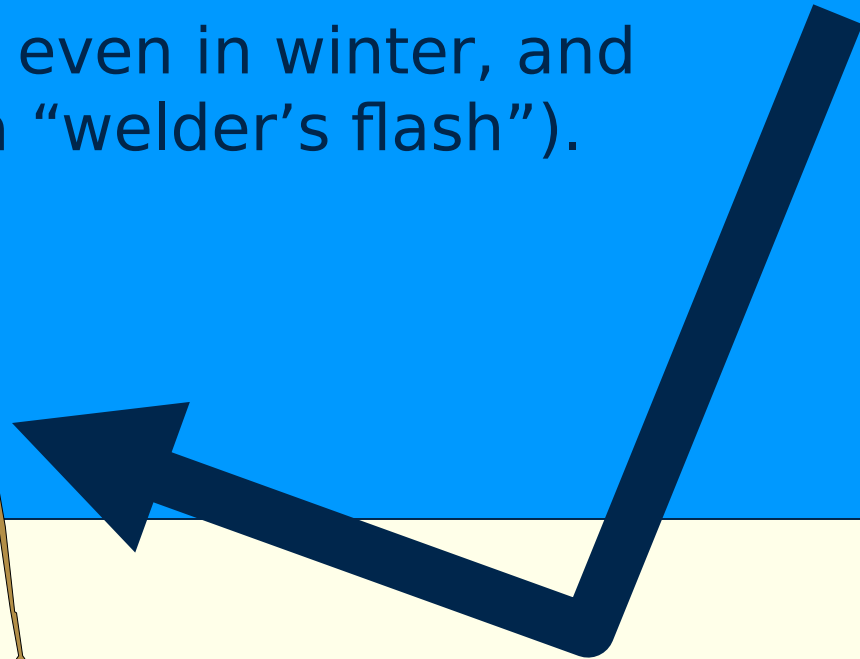
U.S. Army Center for Health Promotion  
and Preventive Medicine  
Laser/Optical Radiation Program



# Sources of Outdoor UVR

## Surface reflections.

Fresh snow reflects ~ **80%** of UVR. This can lead to sunburn even in winter, and snow-blindness (aka “welder’s flash”).

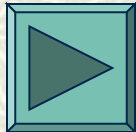


U.S. Army Center for Health Promotion  
and Preventive Medicine  
Laser/Optical Radiation Program



# UVR Damage to Health

**\*UVR exposure does have some health benefit, but only incidental exposure is necessary.**



U.S. Army Center for Health Promotion  
and Preventive Medicine  
Laser/Optical Radiation Program





# UVR Damage To Skin

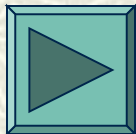
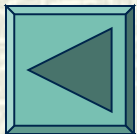
## - Short-Term and Long-Term

### Effects

- # Sunburn, blistering of skin.
- # Skin photoageing.
  - Photoaged skin appears yellowed, leathery and wrinkled compared to healthier less-exposed skin.



National Institutes of Health  
National Institute of Environmental Health Sciences



U.S. Army Center for Health Promotion  
and Preventive Medicine  
Laser/Optical Radiation Program

Exit

# UVR Damage To Skin

## - Long-Term Effects.

- # Skin cancer.
  - Has been related to lifetime UVR exposure.
  - **One American dies every hour from skin cancer.**



**Skin cancer lesions are typically > 1 cm in diameter and have an irregular shape and color.**



# UVR Damage to the Eye

## - Short-Term Effects.

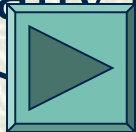
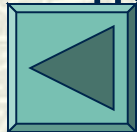
### # Snowblindness, aka “welder’s flash.”

- Painful but short-term swelling of the eye.

- Symptoms usually gone after 24 hrs.



**Fresh snow is 80% effective at reflecting UVR. In snow-covered areas this can not only lead to sunburns in winter, but also cause snowblindness to persons who do not wear goggles for protection.**



U.S. Army Center for Health Promotion  
and Preventive Medicine  
Laser/Optical Radiation Program

Exit



# UVR Damage to the Eye

## - Long-Term Effects.

### # Cataract.

- Fogging of the lens from cellular damage over a lifetime of UVR

exposure.

Cataract

operations

cost billions

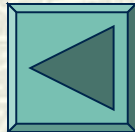
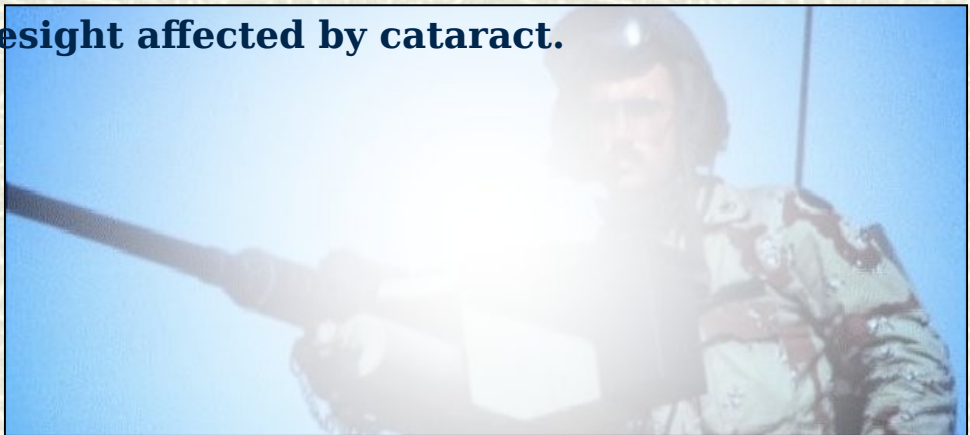
around the

world every

**Eyesight normal.**



**Eyesight affected by cataract.**



U.S. Army Center for Health Promotion  
and Preventive Medicine  
Laser/Optical Radiation Program

Exit

# Contacting Us

---

## # Mailing Address:

Commander  
U.S. Army Center for Health Promotion and Preventive  
Medicine  
ATTN: MCHB-TS-OLO  
5158 Blackhawk Road  
Aberdeen Proving Ground, Maryland 21010-5403

## # Phone Numbers:

Commercial (410) 436-3932; DSN 584-3932  
Fax (410) 436-5054; DSN Fax 584-5054  
1-800-222-9698 (USACHPPM)

## # E-mail:

[laser@apg.amedd.army.mil](mailto:laser@apg.amedd.army.mil)

## # Website:

<http://chppm-www.apgea.army.mil/laser/laser.html>



U.S. Army Center for Health Promotion  
and Preventive Medicine  
Laser/Optical Radiation Program

Exit